

Livestock and Livelihoods: The Indian Context by Nitya Sambamurthi Ghotge gives a holistic view on the importance of the livestock and its linkages with ecological, sociological and economic practices. The interrelations presented in the book give a vivid idea of how livestock sustains livelihood for different communities who are dependent on it. Ghotge gives narratives in historical order of how domestication of animals came into practice and divergent processes like the livestock farming revolution contributed to increasing the population of the animals. The latter half of the book presents the need for reorientation of the policies and providing a better framework for bolstering local breeds and breeding systems.

The book is pertinent for those interested in understanding livestock's role in strengthening agriculture, society and India's diverse geography to maintain an ecological balance. It allows the readers to make linkages between the two sections of the book. The first half adopts an introductory approach to help readers to know the basics of livestock in India. It brings out different areas into the picture viz. a historical preview of care and livestock management, rearing patterns according to geographical locations, indigenous breeds depending on habitats, local food availability in the area, and types of communities involved. Ghotge provides a contrasting picture in the second half which shows the change in livestock care and management after colonization, with different government policies coming into the scene for economic development. The linkage between the two sections of the book helps to understand the gap whether the new policies will help in achieving sustainable development or if the traditional practices of rearing and care were a better intervention for the subject of livestock. The book presents several survey reports by ANTHRA wherein Ghotge is one of the directors.

The main argument laid out in the book is to know the progression of Indian livestock economy from early invasions and British colonization to the post-independence governance of livestock. The author justifies the argument

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with evidence that shows how livestock has become a subject of only economic gains rather than a subject of subsistence for the communities dependent on it. Ghotge compares the modern realm of livestock with traditional practices and new policies that have excluded people in decision making for their animals.

The book mostly ponders on detailing the different patterns of livestock rearing according to the subcontinent's agro-ecological zones. The detail covers different communities, their agricultural choices, and different breeds of livestock. This idea of presentation makes the book a good read for beginners in livestock education. Two types of livelihood patterns were taken into account in the book: a.) Forest-Based and b.) Crop Based. The presentation is mostly descriptive intended to make the readers to get acquainted with these systems (pg. 9-32).

Livestock and livelihood starts with the history of the domestication of animals. It briefly mentions various invasions in classical times which were mostly due to search for fresh pastures. Also, the book reminisces finely on India's history of taking care of animals who were considered as a representation of wealth and symbolized power and domination. The example of chess as a game gives an idea of how animals were considered in the royal court and also the mention of several ancient texts describing how animals were taken care of (pg. 32-34).

The intricacies of the caste and other sociological aspects are dealt with in the book (pg. 8, 26 & 52) but the effects of the gap because of caste divide in livestock rearing are presented without explaining the benefits or the problems of such a divide. The author writes about Ahirs and Yadavs rearing cows but she doesn't mention "how animals confer identity and status with particular social subgroups and is a problematic socio-political aspect in India. For instance, donkeys are kept only by lower castes. Kumhars, camels and sheep by Raika, while chicken is kept by Adivasis. Pig keeping is socially unacceptable for higher castes. Only goats are largely "neutral" animals from a social perspective" (Rollefson, 2005).

Apart from caste, gender is another important vertical that the book aptly mentions. The author is right in bringing out the contribution of women in livestock-rearing activities. However, the book does not reflect on policies where 'women's work in animal rearing activities is undercounted in standard labour force surveys. Despite changes in concepts and definitions over the years, the NSSO's Employment and Unemployment Surveys (EUS) do not adequately capture this economic activity undertaken by women' (Madhura and Usami, 2016).

Also, ‘the current scenario presented by Dr. Ghotge about tribal communities’ who are dependent on forests and livestock rearing for livelihood seemed to be more romantic (pg. 5-6) and their actual condition of hardship is not addressed in this book. For instance, Rollefson in her book points out that tribal “Raika community which developed Nari, Sanchori and Sirohi goats are still backward and have never received any official recognition” and they are struggling to save their livelihood. (Rollefson, 2005).

Coming to the latter part, under the head ‘Traditional Practices in Animal Rearing’ the author mentions the need for fodder for the livestock and how India’s agro-ecological zones provide nutrition. Ghotge nicely compares how grasslands have become ecologically sensitive and the palatable species for livestock have declined. She also puts forth how commercial crops and mono-crop culture have ruined traditional practices.

One of the chapters also deals with traditional animal housing patterns that were more humane and gave animals considerable space. Consider the Koti Banal Architecture of Uttarakhand known for its earthquake resistance as an illustration of traditional animal housing wherein the ground floor was kept only for the livestock, both humans and animals stayed in the same house (O. C. Handa, 2009). If we look at the modern animal setup (farms, poultry) it is mostly congested and stuffed with too many animals are kept within the same space leaving no space in between (Arney, 2012)

Traditional breeding practices cover most of the book addressing how the ‘process of natural selection’ (pg. 35) was kept in mind by ancient herders. The practices give an outline of how even semi-domesticated animals like yaks and mithun were raised. The author gives a brief on the traditional method but the narrative doesn’t include how these traditional methods have been sidelined and why there is a need for reorientation for the same. For instance: “Yaks have adapted to high altitudes, but not to human-made lines on the map. As wars and conflicts have led to the closing of borders, the yaks are suffering from inbreeding due to lack of availability of new yak germplasm this has resulted in using the same bull within the herds. Yaks are now prone to diseases and have led to the deterioration of their population”. (Ahmad, 2016b)

While comparing modern interventions with traditional breeding techniques the author presents the boon of colonization by stating “Not everything the British colonizers did was damaging or detrimental. To their credit, they set up veterinary colleges, various research stations” (pg.66). But the politics behind setting up these institutions is not presented in the book. A report presented in *Medical History of British India* shows that these institutions were set up to benefit the military before the First World War.

The animals then were used as transport also: “The veterinary colleges formed part of a wider, ideologically motivated attempt to replace Hindu veterinary science ('mrgayurveda') with Western veterinary science. Undermining indigenous science allowed Indians to be portrayed as children, in terms of scientific achievements, which helped to justify British paternalistic, authoritarian rule” (*Medical History of British India, 2007*).

In the second half of the book, Ghotge presents her opinions on ‘Reorienting Ourselves’ (pg. 108). She underlines the problems which farmers face which are low quality of animals, less credit, unavailability of fodder, diseases affecting animals and credit schemes, etc. But while justifying the argument of the need for planning with people, the evidence only focused on health and medicines in all the categories of reorienting policy, alternative medicines, reorienting curricula and research. In the previous chapter ‘It must not end: Towards an Alternative Policy’ (pg. 100) she explores some of the problems of the farmers. It would have been an easy read if the ‘problems’ were listed first and the ‘solutions’ later.

In the chapter ‘Framework for an Alternative Policy’, almost every important aspect of livestock management and development has been mentioned but the problem of decrease in livestock’s population (“India’s livestock population declines by 3.33% in 7 years”, 2014) and the factors responsible are not explicitly covered. The reasons for the decline in livestock probably could be the shift in occupation as modern education and lucrative jobs to secure life (Ahmad, 2016a). Also, the task of livestock rearing is a cumbersome process that the current generation doesn’t like to take up. Several organizations like The Green People are addressing the issue by conducting goat swayamvaras to increase the gene pool and attracting more tourists with the new concept of watching Goats marriages and is also helping the villagers to retain their practices of livestock rearing (Prabhu, 2018)

The author has touched different domains of history, sociology and geographical patterns in the book but the impact of climate change on livestock’s adaptation has not been discussed. “As the world demand for animal protein will rise as the population and real incomes increase and the eating habits will change. Therefore, animal production plays and will continue to play a key role in the food supply. High ambient temperatures augment the efforts to dissipate body heat, increasing respiration rate, body temperature, and consumption of water and a decline in feed intake of livestock. Thereby, declining the population of livestock (Sejian, 2015)”.

Ghotge herself being a veterinarian presents a broad picture on livestock rearing. She takes the position of a sociologist, policy analyst, and ecologist

while writing *Livestock and Livelihoods*. She tries to show how India's relationship with its animals has changed over the years; she asserts this with numerous examples to show that earlier the relationship was mostly dependent on multiple factors that were beyond economic gains. She further asserts how in earlier days the care of animals was not just rendering veterinary services during diseases. Humans had a lot of affection towards their domesticated animals and had knowledge that was naturally available in their geographical space. The book could have become more interesting if the author would have compared traditional practices with modern practices and their sustainability, for instance traditional housing vs. modern infrastructure for livestock (e. g. the Koti Banal architecture mentioned above; modern poultry system); or traditional vs. modern yak breeding. This comparison would have justified her argument of "preserving the environment and the diversity within would lead us on a development path which is more humane, ultimately more sustainable and viable" (pg. 100).

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